

1. A network for forming a VPN on a shared network and communicating via the VPN, comprising:

interface devices provided at edges of the label switching network for interfacing said label switching network and the VLANs.

15 a transmit-side edge router for converting a
packet, which is sent from a VLAN, to an MPLS packet and
transmitting the packet to the MPLS network; and

3. The network according to claim 1, wherein each of
said edge routers has a first table storing
25 correspondence between VLAN identifiers (VIDs) contained
in VLAN packets and VPN labels contained in MPLS
packets;

said transmit-side edge router finds a VPN label,

which corresponds to a VLAN identifier (VID) of a VLAN packet, from said first table, generates an MPLS packet having this VPN label and sends this MPLS packet to the MPLS network; and

5 said receive-side edge router finds a VID, which corresponds to a VPN label contained in an MPLS packet received from the MPLS network, from said first table, generates a VLAN packet having this VID and sends this VLAN packet to a VLAN indicated by this VID.

10 4. The network according to claim 3, wherein each of
said edge routers includes:

a route decision unit for deciding a route which directs an MPLS packet to a receive-side edge router; and

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15         a second table for storing forwarding labels, which
specify routes decided by said route decision unit,
mapped to addresses of receive-side edge routers;

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said transmit-side edge router finds a receive-side edge router corresponding to a destination of a packet, finds a forwarding label, which corresponds to the receive-side edge router, from said second table, generates an MPLS packet that contains the VPN label and the forwarding label and sends this MPLS packet to the MPLS network.

25 5. The network according to claim 4, wherein an edge
router which constructs the VPN and is connected to a
VLAN sends another edge router an address set composed
of an address of a VLAN-compatible device connected to

between VLAN identifiers (VIDs) and VPN labels serving
as VPN identifiers; and

an MPLS packet generating unit for finding a VPN
label corresponding to a VID, which is contained in a
5 packet sent from the VLAN, using the corresponding
relationship, generating an MPLS packet that includes
this VPN label and sending this MPLS packet to the MPLS
network.

10. The edge router according to claim 9, further
10 comprising:

a route decision unit for deciding a route which
directs an MPLS packet to a receiver-side edge router;
and

a forwarding label storage unit for storing
15 forwarding labels, which specify routes decided by said
route decision unit, mapped to addresses of receive-side
edge routers;

wherein said MPLS packet generating unit finds a
receive-side edge router corresponding to a destination
20 of a packet, finds a forwarding label, which corresponds
to the receive-side edge router, from said forwarding
label storage unit, and generates an MPLS packet that
contains the VPN label and the forwarding label.

11. The edge router according to claim 10, wherein said
25 MPLS packet generating unit receives from edge routers
which are connected to other VLANs constituting said
VPN, information comprising a combination of addresses
of these edge routers and addresses of VLAN-compatible

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devices connected to these edge routers, creates a routing table based upon said received information and finds said receive-side edge router, which corresponds to the destination of the packet, from said routing table.

12. An edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, wherein a receive-side edge router comprises:

a table for storing correspondence between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers; and

a VLAN packet generating unit for finding a VID corresponding to a VPN label, which is contained in a packet that enters from the MPLS network, using said table, generating a VLAN packet that includes this VID, and sending this VLAN packet to a VLAN.

13. An edge router in a network for forming a VPN on a shared network, forming a core network of the VPN by an MPLS network and forming an access network, which is for accessing the core network, by a VLAN, comprising:

a table for storing correspondence between VLAN identifiers (VIDs) and VPN labels serving as VPN identifiers;

an MPLS packet generating unit for finding a VPN label corresponding to a VID, which is contained in a packet that enters from the VLAN, using said table,

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